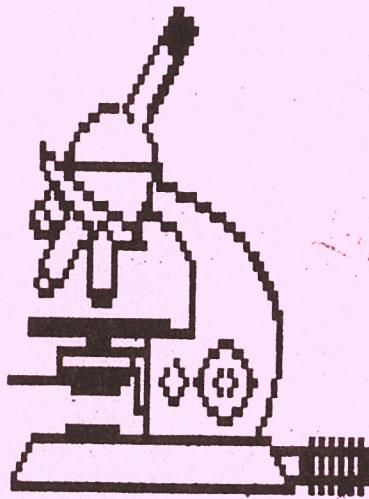


11/19/91

# ADVISEMENT HANDBOOK BIOLOGY



DEPARTMENT  
MANSFIELD  
UNIVERSITY



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## GENERAL EDUCATION PROGRAM

### Core Requirements

English I	- 3 S.H.
English II	- 3 S.H.
Oral Communication	- 3 S.H.
Health and/or P.E.	- 3 S.H.
Fine Arts	- 3 S.H.
	<u>15 S.H.</u>

### The Five Basic Groups

- I - Humanities (English, History, Honors (100,101), Philosophy).
- II - Languages (French, German, Spanish).
- III - Sciences (Astronomy, Biology, Chemistry, Geology, Physics).
- IV - Mathematics ( Math - all courses)
- V - Social Sciences (Anthropology, Economics, Geography, Honors 201, Political Science, Psychology, Sociology).

Students should take two courses in four of the five basic groups during the freshman year. During the sophomore year they should take two more courses, or complete 12 semester hours in three of the four basic groups where they have initiated work the previous year. Students bear the responsibility for meeting any specific group requirements as demanded for their eventual majors. Faculty advisors are available and willing to assist students in their selection of course work.

### Advising Recommendations:

1. Students must see their Biology Department advisor at least once a semester to pre-register for the next semester. This is an important individual responsibility for each student.
2. Become familiar with your personal Evaluation Record Form and carefully assess what specific courses remain to complete the requirements of your major.
3. At the end of 64 semester hours, students are admitted to the upper division of study. Learn what upper division entrance requirements are listed in your specific academic division or major area of study.
4. Contact the Placement Office during your freshman year to determine career and placement opportunities for various areas of specialization. Such a visit may eliminate many problems during your senior year.
5. If students have any advising questions or problems concerning the General Education program they should contact the Academic Advising Center.

## SPECIAL RULES

The following special rules govern the General Education Program:

1. Every student must satisfy the minimum requirements of four out of five "Groups" listed under Distribution Requirements.
2. A student may use only six credits from his/her major discipline to fulfill General Education Distribution Requirements (Groups) and General Education Electives. Professional courses are excluded except under special rule #10.
3. No more than two courses with the same prefix (of three or four credits each) may be used to complete a Group (Distribution Requirements, Group I - V). A maximum of 12 credits with the same prefix is permitted as distribution requirements when including those taken as General Education electives.
4. No more than eighteen (18) credits from approved courses or disciplines from one Group (if Group I, III, or V) may be used to meet Distribution Requirements. This includes the Distribution Groups I, III, V and General Education Electives, for example, twelve (12) credits in Group I from approved courses and six (6) credits from the same discipline used in the General Education elective area is the maximum allowed in the Humanities. In the case of Groups II and IV only twelve (12) credits is permitted.
5. Any specific course, or courses from Disciplines approved for General Education, from the above lists may be used as Distribution Electives.
6. A minimum of 41 credits in Distribution Requirements and Electives is required.
7. Six credits in a single language are required when completing the Foreign Language Group minimum.
8. One Physical Education credit may be earned by registering for HPE 205 after participating in intercollegiate athletics.
9. Physically handicapped students may complete the HPE 101-151 requirement by special arrangement.
10. One Professional Elective is allowed from those approved. However, it must be replaced should the student subsequently choose a major in that field.
11. If Remedial Education, ENG 090, MA 090, and/or ED EL 090 are required, they should be taken the first semester. Three, six or nine hours of courses would be deferred to other semester. The semester hours earned from these courses do not count toward the 128 semester hours needed for graduation.

NEW GENERAL EDUCATION PROGRAM APPROVED COURSES

GROUP I, HUMANITIES  
(MINIMUM 9 CREDITS)

ENG 113 HST 102 PHL 202  
ENG 205 HST 104 PHL 230  
ENG 206 HST 201 PHL 240  
ENG 210 HST 202 HON 100  
ENG 211 PHL 201 HON 101  
HST 101

GROUP IV, MATHEMATICS  
(MINIMUM 6 CREDITS)

ANY COURSES OFFERED BY THE  
DEPARTMENT OF MATHEMATICS WILL  
SATISFY THIS REQUIREMENT.

GROUP II, FOREIGN LANGUAGES  
(MINIMUM 6 CREDITS)

ANY COURSES OFFERED BY THE  
FOREIGN LANGUAGE DEPARTMENT  
WILL SATISFY THIS REQUIREMENT.

GROUP V, SOCIAL SCIENCES  
(MINIMUM 6 CREDITS)

ANH 101 GEG 111 PSY 101  
ANH 102 GEG 222 PSY 210  
ECO 101 HON 201 PSY 212  
ECO 102 PSC 100 PSY 290  
ECO 204 PSC 101 SOC 101  
ECO 205 PSC 210 SOC 121  
GEG 101 PSC 212 SOC 232  
GEG 102

GROUP III, NATURAL SCIENCES  
(MINIMUM 9 CREDITS)

AST 105 BIO 210 GEL 102  
AST 106 BIO 220 GEL 121  
AST 108 CHM 101 GEL 122  
AST 109 CHM 102 PHY 130  
AST 110 CHM 103 PHY 151  
AST 111 CHM 111 PHY 152  
BIO 101 CHM 112 PHY 188  
BIO 102 GEL 101 PHY 211

PROFESSIONAL ELECTIVES

BFC 217 ED 100 SPE 101  
BUS 130 HEC 111 SWK 101  
CIS 103 RPL 102 TRT 102  
CJA 100

# OLD GENERAL EDUCATION PROGRAM APPROVED COURSES

## GROUP I, HUMANITIES

ARH 101	ENG 220	PHL 201
ARH 102	ENG 224	PHL 202
ARH 226	ENG 225	PHL 220
ARH 229	ENG 226	PHL 230
ART 201	ENB 232	PHL 240
ART 210	ENG 235	PHL 250
ART 231	ENG 290	PHL 270
ART 241	ENG 291	PHL 280
ART 251	ENG 299	COM 200
ART 271	JN 100	COM 201
ART 281	JN 310	COM 203
ART 295	JN 330	COM 204
ART 345	MUS 100	COM 305
ENG 113	MUS 111	THT 110
ENG 205	MUS 122	THT 202
ENG 206	MUS 123	THT 212
ENG 210	MUS 222	HON 100
ENG 211	MUS 223	HON 101
ENG 213	MUS 224	HON 201

## GROUP II, LANGUAGES

FRENCH, GERMAN, SPANISH, ITALIAN

FR, GER, SPAN, ITAL. 101

FR, GER, SPAN, ITAL. 102

FR, GER, SPAN 201

FR, GER, SPAN 202

ADVANCED COURSES BY STUDENT PETITION

## GROUP III, SCIENCES

AST 105	BIO 220	GEL 102
AST 106	BIO 240	GEL 121
AST 108	BIO 260	GEL 122
AST 109	CHM 101	PHY 130
AST 110	CHM 102	PHY 151
AST 111	CHM 103	PHY 152
AST 112	CHM 106	PHY 165
BIO 101	CHM 111	PHY 188
BIO 102	CHM 112	PHY 211
BIO 210	GEL 101	PHY 212

## GROUP IV, MATHEMATICS

MA 101	MA 111	MA 141
MA 105	MA 130	MA 160
MA 107	MA 140	MA 203
MA 109		
ADVANCED COURSES BY STUDENT PETITION		

## GROUP V, SOCIAL SCIENCES

ANH 101	HST 102	PSY 240
ANH 102	HST 104	PSY 101
ECO 101	HST 201	PSY 210
ECO 102	HST 202	PSY 311
ECO 204	HST 205	PSY 320
ED 100	HST 210	PSY 321
GEG 101	HST 232	SOC 101
GEG 102	HST 250	SOC 121
GEG 111	PSC 100	SOC 302
GEG 222	PSC 101	SOC 305
RPL 102	PSC 202	SA 321
HST 101	PSC 210	

## BIOLOGY DEGREE REQUIREMENTS

### I. Biology Course Requirement

Biology majors are required to take:

1. BIO 111 Introduction to Cell Biology
2. BIO 210 General Zoology
3. BIO 220 Botany
4. BIO 310 Ecology or 362 Limnology (Except B.S.M.T.)
5. BIO 404 Biology Seminar (Except B.S.M.T.)

In addition students must take 2 of 3 options.

1. BIO 330 Plant Physiology or  
BIO 332 Physiology (Required B.S.M.T.)
2. BIO 340 Genetics (Required B.S.M.T.)
3. BIO 355 Microbiology (Required B.S.M.T.)

### II. Extra - Departmental Course Requirements

#### A. Chemistry Course Requirements

1. CHEM 111 General Chemistry I
2. CHEM 112 General Chemistry II
3. CHEM 211 Organic Chemistry I (Except B.S. Fisheries )
4. CHEM 212 Organic Chemistry II (Except B.S. Fisheries)
5. CHEM 311 Quantitative Analysis (Required Only of B.S. Fisheries )
6. CHEM 332 Instrumental Analysis (Required Only of B.S. Fisheries)

#### B. Physics Course Requirements

1. PHY \*191 Physics I
2. PHY 192 Physics II

#### C. Mathematics Course Requirements

1. Option A:  
MA 140 Analytic Geometry and Calculus I  
MA 141 Analytic Geometry and Calculus II
2. Option B:  
MA 105 Introduction to Statistics  
MA 107 Introduction to Computer Programming  
MA 140 Analytic Geometry and Calculus I

In addition to the requirements above, each degree program has specific requirements listed later in this handbook.

\* Physics 191, 192 sequence is offered only in academic years which begin with even numbered years e.g. 1988, 1990, etc. Phy 192 is not required of BS MT students.

IV. Courses which Biology Majors MAY NOT take for credit.

1. BIO 101 Man and the Biological World
2. BIO 102 Contemporary Biological Problems
3. BIO 343 Food Microbiology
4. CHM 101 Inorganic (Home Ec., Liberal Arts excluding Science majors)
5. CHM 102 Organic and Biochemistry (Home Ec., Liberal Arts excluding Science majors)
6. CHM 103 Environmental Chemistry
7. PHY 151 Conceptual Physics I
8. PHY 152 Conceptual Physics II
9. PHY 170 Introduction to Electronic Apparatus
10. MA 101 Fundamental Concepts in Mathematics

## PASS - FAIL POLICY

1. No courses in any major offered by the Biology Department may be taken as a pass-fail option.
2. Eight courses may be taken under the pass/fail option over the total of four years. A student may take no more than one course pass/fail each semester.
3. No 100 or 200 level courses taken in fulfillment of General Education Core, Requirements, or electives may be taken pass/fail.
4. Any 100 or 200 level course may be taken pass/fail but will count only as a free elective.
5. Information that any 100 or 200 level course taken pass/fail will count only as a free elective should be included on the pass/fail option card.
6. Courses required by the major department may only be included in the pass/fail option at the discretion of the department.
7. Pass grades will be "D" or better, and three failures under the option will constitute a loss of the option. Pass/fail courses are not reflected in the quality point average of the student, but will be counted as semester hours earned if a passing grade is received. The student has a two week period at the beginning of the semester to elect to take a course pass/fail. He/She may not change the pass/fail option to a letter grade or select the pass/fail option after the two week add period has passed.
8. None of the following courses may be taken as a pass/fail option.

CHM 111 General Chemistry I  
CHM 112 General Chemistry II  
CHM 211 Organic Chemistry I  
CHM 212 Organic Chemistry II

PHY 191 Physics I  
PHY 192 Physics II

MA 140 Analytic Geometry and Calculus I  
MA 141 Analytic Geometry and Calculus II  
MA 105 Introductory Statistics  
MA 107 Introduction to Computer Programming

ENG 090 Writing Skills (University-wide policy)  
ENG 112 Composition I (University-wide policy)  
ENG 313 Composition II (University-wide policy)

## EVALUATION RECORD

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy	3			
Eng 090 Basic Writing	3			
Ma 090 General Mathematics	3			

### GENERAL EDUCATION

#### COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3			
Eng 112 Composition I	3			
Eng 313 Composition II (Min. C)	3			

#### HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2			
HPE 101-151	1			
HPE 101-151	1			
HPE 101-151	1			

#### FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3			
Mus 100 Intro to Music	3			
Tht 110 Intro to Theatre	3			

#### DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

#### GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH


#### GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)


#### GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 220 Botany	4		
Chm 111 Gen'l Chem I	4		
Chm 112 Gen'l Chem II	4		

#### GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 140 Analy Geom&Calc I	3		
Ma 141 OR 105 & 107	3		

#### GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH


#### GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)


#### SPECIAL RULES:

- 1) 090 courses do not count toward graduation.
- 2) Max. 6 SH in major allowed in G.E. Dist. area.
- 3) Max. 2 courses with same prefix in GROUPS.
- 4) Max. 12 SH with same prefix in G.E. Dist. area.
- 5) One non-major professional elective allowed.

NAME \_\_\_\_\_

SOC. SEC. NO. \_\_\_\_\_ DATE ADMITTED \_\_\_\_\_

BIOLOGY MAJOR	52 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 210 Zoology	4			
Bio 310 OR 362	3			
Bio 404 Seminar	1			
Chm 211 Organic Chem I	4			
Chm 212 Organic Chem II	4			
Phy 191 Physics I	4			
Phy 192 Physics II	4			
Must Take Two Courses:				
Bio 330 OR 332				
Bio 340 Genetics	3			
Bio 355 Microbiology	3			
BIOLOGY ELECTIVES - 17 OR 18 SH				

FREE ELECTIVES SH \_\_\_\_\_

Date _____				
SH Sched. _____				
SH Earned _____				
Qual. Pts. _____				
G P A _____				

**Bachelor of Arts Program**  
**Recommended Semester Sequence**

**Freshman Year**

**First Semester**

CHM 111	Gen Chem I	4	
*MA 140	Calculus I	3	
BIO 111	Intro Cell Bio	4	
ENG 112	Comp I	3	
#FINE ARTS	Elective	3	
**HPE 101		1	

**Second Semester**

CHM 112	Gen Chem II	4
*MA 105	Statistics	3
BIO 220	Botany	4
#GEN ED	Electives	6

18

17

**Sophomore Year**

**First Semester**

CHM 211	Org Chem I	4	
#GEN ED	Elective	3	
BIO 210	Zoology	4	
#GEN ED	Elective OR		
MA 107	Intro Comp Prgm	3	
**HPE 100		2	

**Second Semester**

CHM 212	Org Chem I	4
BIO	Elective	3
SPC 101	Oral Comm	3
#GEN ED	Electives	6

16

16

**Junior Year**

**First Semester**

PHY 191	Physics I OR	4 or 3	
	CHM or FREE Elec		
BIO	Elective	3	
#GEN ED	Elective	3	
ENG 313	Comp II	3	
BIO 310	Ecology OR	3	
BIO	Elective		

16/15

**Second Semester**

BIO	Elective	3
#GEN ED	Elective	3
PHY 192	Physics II OR CHM	4
	or FREE Elec	
#FREE or GEN ED	Electives	3
BIO 345	Dev Bio OR	
BIO 351	Histology	

16

**Senior Year**

**First Semester**

BIO	Electives OR	
Bio 310	Ecology + Elective	6
FREE	Electives	6
&FREE OR CHM Elec	OR	3 or 4/4
PHY 191		

15/16

**Second Semester**

BIO	Electives	6
BIO 404	Seminar	1
&CHM or FREE Elec	OR	4
PHY 192		
FREE	Elective	3

14

\* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A, or MA 140, 105 and 107 under option B.

\*\* Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100, Health for 2 credits and a 1-1 credit PE course.

## There are five (5) groups of General Ed Courses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill group requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of them must be taken to complete the Fine Arts requirements.

& A chemistry minor is very good for biology majors and any 2 additional chemistry courses would satisfy. Suggestions are CHM 311, 341 in the fall and 332 in the spring.

## EVALUATION RECORD

26.0101  
BIOLOGY B.A.  
(eff. F-86)

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy	3			
Eng 090 Basic Writing	3			
Ma 090 General Mathematics	3			

### GENERAL EDUCATION

#### COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3		
Eng 112 Composition I	3		
Eng 313 Composition II (Min. C)	3		

#### HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2		
HPE 101-151	1		
HPE 101-151	1		
HPE 101-151	1		

#### FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3		
Mus 100 Intro to Music	3		
Tht 110 Intro to Theatre	3		

#### DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

#### GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH


#### GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)


#### GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 220 Botany	4		
Chm 111 Gen'l Chem I	4		
Chm 112 Gen'l Chem II	4		

#### GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 140 Anly Geom&Calc I	3		
Ma 141 OR 105 & 107			

#### GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH


#### GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)

Geg 222 Envir Land Use&Nat Res	3		

#### SPECIAL RULES:

- 1) 090 courses do not count toward graduation.
- 2) Max. 6 SH in major allowed in G.E. Dist. area.
- 3) Max. 2 courses with same prefix in GROUPS.
- 4) Max. 12 SH with same prefix in G.E. Dist. area.
- 5) One non-major professional elective allowed.

NAME \_\_\_\_\_

SOC. SEC. NO. \_\_\_\_\_ DATE ADMITTED \_\_\_\_\_

ENVIRONMNTL SCI. EMPHASIS	64 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 210 Zoology	4			
Bio 310 Ecology	3			
Bio 362 Limnology	3			
Bio 404 Seminar	1			
Bio/Geg/Gel 465 Sem: Envrn. Sci.	1			
Chm 211 Organic Chem I	4			
Chm 212 Organic Chem II	4			
Phy 191 Physics I	4			
Phy 192 Physics II	4			

Must Take Two Courses:

Bio 330 OR 332	
Bio 340 Genetics	3
Bio 355 Microbiology	3

BIOLOGY ELECTIVES - 13 OR 14 SH

ENVIRONMNTL SCI. EMPHASIS - 12 SH

Must Take Two Courses:

Chm 332 Instrumental Anly	3
Geg 312 Weather & Climate	3
Gel 361 Sedimentation	3

Must Take Two Courses:

Chm 311 Quantitative Anly	3
Geg 231 Maps & Mapping	3
Geg/Gel 372 Aerial Photo Intrp	3
Gel 102 Environmental Geol	3
Gel 121 Physical Geology	3

FREE ELECTIVES SH

Date							
SH Sched.							
SH Earned							
Qual. Pts.							
G P A							

Adv. Standing \_\_\_\_\_

S.H. Credited \_\_\_\_\_ Required 128 SH \_\_\_\_\_

**Bachelor of Arts Program**  
**Environmental Science**  
**Recommended Semester Sequence**

**Freshman Year**

**First Semester**

CHM 111	Gen Chem I	4
*MA 105	Statistics	3
BIO 111	Intro Cell Bio	4
ENG 112	Comp I	3
GEG 222	Envir Land Use	3
		<u>17</u>

**Second Semester**

CHM 112	Gen Chem II	4
*MA 140	Calculus I	3
BIO 220	Botany	4
#GEN ED	Electives	3
HPE 101	Health	2
		<u>16</u>

**Sophomore Year**

**First Semester**

&CHM 211	Org Chem I	4
#GEN ED	Elective	3
BIO 210	Zoology	4
GEG 372	Aerial Photog	3
GEG 312	Weather Climate	
BIO 362	Limnology	3
BIO 310	Ecology	
		<u>17</u>

**Second Semester**

CHM 212	Org Chem I	4
BIO	Elective	3
SPC 101	Oral Comm	3
#GEN ED	Electives	3
HPE 101	Phys Ed	1
*MA 107	Intro to Comp Pgm	3
		<u>17</u>

**Junior Year**

**First Semester**

PHY 191	Physics I OR Gen Ed	4/3
BIO	Elective	3
GEG 312	Weather Climate OR	3
GEG 372	Aerial Photog	
BIO 310	Genetics OR	3/4
CHM 311	Quant. Anal	
BIO 310	Ecology OR	3
BIO 362	Limnology	
		<u>17/15</u>

**Second Semester**

BIO 355	Microbiology	3
BIO	Elective	3
PHY 192	Physics II OR	4
BIO 332	Physiology	
ENG 313	Comp II	3
#FINE ARTS	Elective OR	3
GEG 231	Maps & Mapping	
		<u>16</u>

**Senior Year**

**First Semester**

BIO	Electives	6
#GEN ED	Electives OR	3/4
PHY 191	Physics	
CHM 311	Quant. Anal OR	3/4
BIO 310	Genetics	
BIO 465	Envi Sci Seminar	1
		<u>16/15</u>

**Second Semester**

BIO 332	Physiology OR	4
PHY 192	Physics II	
BIO 404	Seminar	1
#GEN ED	Electives	6
CHM 332	Inst Anal OR	3
BIO	Elective OR	
GEG 231	Maps & Mapping	3
	FINE ARTS Elective	

17/14

\* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A, or MA 140, 105 and 107 under option B. If a student must take MA 090, the course sequence should be MA 101 then MA 130 then MA 140. Remember MA 140 is prerequisite for PHY 192.

\*\* Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100, Health for 2 credits and a 1 credit PE course.

- # There are five (5) groups of General Ed Courses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill group requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of them must be taken to complete the Fine Arts requirements.
- & A minor in chemistry is acquired with this schedule of chemistry courses.

**BIOLOGY  
Department  
Office  
Room 128 GSC**



**Secretary  
Roxie Mogush**



### Bachelor of Science - Fisheries

This B.S. degree program in the Biology Department provides extensive course work in three major areas of fisheries science; aquaculture, fisheries biology, and fisheries management. Unique features of the program include summer internship and field courses and a required independent research project. Cooperative education and research agreements with the U.S. Fish and Wildlife Service National Fishery Research and Development Laboratory and the Pennsylvania Fish Commission are an integral part of the fisheries program at Mansfield University. Graduates of the program meet the requirements for certification as an Associate Fishery Scientist by the American Fisheries Society.



**Recommended Semester Sequence**

**Freshman Year**

**First Semester**

BIO 210	Zoology	4
CHM 111	Gen Chem I	4
*MA 140	Calculus I	3
BFC 213	Fish Cult I	3
		<u>14</u>

**Second Semester**

CHM 112	Gen Chem II	4
*MA 105	Intro Stats	3
General Ed		4
BFC 214	Fish Cult II	3
		<u>14</u>

**Sophomore Year**

**First Semester**

Bio 111	Cell Biology	4
Bio 362	Limnology	3
*MA 107	Intro Comp Prgm	3
General Ed		3
		<u>13</u>

**Second Semester**

Bio 360	Ichthyology	3
BFC 218	Lit Reports	1
BIO 355	Microbiology	3
General Ed		4
		<u>11</u>

**Junior Year**

**First Semester**

BFC 215	Fish Pathology	3
BIO 460	Aqua Res	2
BIO 340	Genetics	3
#General Ed		6
		<u>14</u>

**Second Semester**

BIO 220	Botany	4
BFC 217	Fish Management	3
BFC 404	Seminar	1
General Ed		6
		<u>14</u>

**Summer I**

BIO 450	Internship	10
or		
Bio 461	Mgt Sm Impdmts	3
Bio 462	Mgt Lg Impdmts	3

**Senior Year**

**First Semester**

CHM 311	Quant Anal	4
PHY 191	Gen Physics I	4
General Ed		5
Bio 404	Seminar	1
		<u>14</u>

**Second Semester**

CHM 332	Inst. Anal	3
PHY 192	Gen. Physics II	4
BIO 310	Ecology	3
#GEN ED	Electives	4
		<u>14</u>

**Summer II**

BIO 461	Mgmt Sm Impmmts	3
BIO 462	Mgmt Lg Impmmts	3
or		
BIO 450	Internship	<u>10</u>

TOTAL CREDITS

133

- \* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A, or MA 140, 105 and 107 under option B. If a student must take MA 090, the course sequence should be MA 101 then MA 130, then MA 140. Remember MA 140 is a prerequisite for PHY 192.
- \*\* Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100, Health for 2 credits and a 1-1 credit PE course.
- # There are five (5) groups of General Ed Coruses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill group requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of them must be taken to complete the Fine Arts requirements.
- & With a year of organic chemistry, the Fisheries major will have a minor in Chemistry.

## Bachelor of Science - Medical Technology

### Characteristics of Program:

The Medical Technology Curriculum is designed for capable and qualified students interested in a paramedical career. It consists of three years of study in general education, chemistry, biology, physics and mathematics at Mansfield University followed by one year (50 weeks) of clinical study at an approved hospital school of medical technology. The student must apply to, and be accepted by, the hospital for the year of clinical study. The minimum requirements for graduation are distributed as follows:

1) General Education 62 hours including mathematics (9 hours), chemistry (8 hours) and biology (4 hours).

2) Field of specialization divided between credits obtained at university and hospital.

a) <u>University</u>	b) <u>Hospital</u>
1. Additional chemistry	12 hours
2. Biology	18 hours
3. Physics	<u>4 hours</u>
	34 hours



**Recommended Semester Sequence**

**Freshman Year**

**First Semester**

CHM 111	Gen Chem I	4
*MA 140	Calculus I	3
BIO 111	Intro Cell Bio	4
ENG 112	Comp I	3
#Fine Arts Elective		3

**Second Semester**

CHM 112	Gen Chem II	4
*MA 107	Intro Comp Prgm	3
SPC 101	Oral Comm	3
#GEN ED	Electives	6
**HPE 101		1

17

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**Sophomore Year**

**First Semester**

CHM 211	Org Chem I	OR	4
PHY 191	Physics I	OR	
BIO 210	Zoology		4
*PSY 100	Gen Psych	OR	3/4
CHM 311	Quant Anal		
MA 105	Intro Stat		3
**HPE 100	Health		2

**Second Semester**

CHM 212	Org Chem I	OR	4
PHY 192	Physics II	OR	
BIO 332	Gen'l Physiology	OR	4
CHM 332	Inst Chem		3
#GEN ED	Electives		6
PHL 201	Intro to Phil		3

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**Junior Year**

**First Semester**

PHY 191	Physics I	OR	4
CHM 211	Organic Chem		
#CHM 311	Quant Anal	OR	4/3
PSY 100	Gen Psych		
ENG 313	Comp II		3
BIO 340	Genetics		3
BIO	Elective		1

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**Second Semester**

BIO 355	Microbiology		3
#GEN ED	Elective		3
PHY 192	Physics II	OR	4
CHM 212	Organic Chem		
BIO 380	Immunology		3
CHM 332	Inst Chem	OR	3
BIO 332	Gen Physiology		4

16/17

**Senior Year**

**Clinical Year at Hospital**

Microbiology (clinical)	8
Clinical Microscopy	3
Clinical Chemistry	8
Hematology	8
Serology	4
Histological Techniques	1

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**& Senior Year for Liberal Arts**

PHY 192	Physics II	4
BIO 404	Seminar	1
BIO 310	Ecology	OR
BIO 362	Limnology	
Biology & Free Electives		24

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- & If a student decides to change curriculum or is not accepted by a hospital School of Medical Technology, they may complete the fourth year at the university as indicated and receive the B.A. degree in biology.
- \* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A or MA 140, 105 and 107 under option B. If a student must take MA 090, the course sequence should be MA 101 then MA 130 then MA 140. Remember MA 140 is prerequisite for PHY 192.
- \*\* Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100. Health for 2 credits and a 1 credit PE course.

# There are five (5) groups of General Ed Courses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill groups requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of these must be taken to complete the Fine Arts requirements.

### Statement of Understanding Medical Technology Curriculum

The medical technology curriculum at Mansfield University is basically the same as the biology curriculum except that students in medical technology spend only three (3) years at Mansfield. The fourth year is spent at an approved hospital School of Medical Technology. During the three (preclinical) years at Mansfield, the student completes course work in general education, chemistry, biology, physics and mathematics for minimum total of 96 semester hours. For completion of the fourth Medical Technology. Mansfield is affiliated with Robert Packer Hospital, Sayre, PA. All eligible students make applications to this hospital. Students may also apply to other non-affiliated hospitals that have approved AMA Schools of Medical Technology. It should be understood by all students in the medical technology curriculum that acceptance by a hospital for completion of the clinical year is not guaranteed. The hospitals, through their selection procedures, choose the best qualified students. Selection is based on overall academic performance and achievement, letters of recommendation and a personal interview. Upon successful completion of all phases of the program, 32 credits are transferred from the hospital to the university and the student receives a baccalaureate degree. The department of biology is aware that some students making application to the hospitals will not be selected and therefore have designed the biology course of study so that these students may transfer to the liberal arts curriculum, complete the necessary course work during the fourth year, and receive the B.A. degree in biology.

The above statement is written so as to avoid misunderstanding and to clarify the characteristics of the medical technology program at Mansfield University.

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Chairman, Biology Department

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Date

I have read the above statement and fully understand the nature and characteristics of the medical technology program.

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Student

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Date

#### MINOR IN BIOLOGY

The minor in biology is designed to broaden and expand the knowledge of students especially those in biology related curricula. The requirements for a minor are a total of at least 20 hours of semester credit. The student must take the following courses: Bio 111, 210 and 220. The additional courses to complete the minor can be selected from and BFC or BIO 200, 300 or 400 level course.

**Departmental Course Offerings**

#	Title	Credits	Semester	Frequency	Instructor
101*	Man and the Biological World	4	Fall/Spr/Sum	annual	Staff
102*	Contemporary Problems in Bio	3	Fall/Spr/Sum	annual	Staff
103*	Human Anatomy	4	Fall	annual	Becker
104*	Human Physiology	3	Fall	annual	Becker
111	Introduction to Cell Biology	4	Fall	annual	Flesch
121**	Human Anatomy and Physiology I	4	Fall	annual	Becker
122**	Human Anatomy and Physiology II	4	Spring	annual	Maris
210	Zoology	4	Fall	annual	Smichowski
BFC 213@	Fish Culture I	3	Fall	annual	Soderberg
BFC 214@	Fish Culture II	3	Spring	annual	Soderberg
BFC 215%	Fish Pathology	3	Fall	biann(odd)	Soderberg
BFC 217%	Fish Management	3	Spring	biann(odd)	Soderberg
BFC 218@	Fisheries Literature Review	1	Spring	annual	Garretson
220	Botany	4	Spring	annual	Meyer
250	Marine Biology	3	Fall	biann(odd)	Meyer
251	Tropical Marine Biology	1	Spring	irregular	Meyer
260	Field Methods in Environ. Biology	3	Summer	irregular	Staff
309	Epidemiology	3	Fall	biann(odd)	Honeywell
310	Ecology	3	Fall	biann(even)	Meyer
325	Entomology	3	Fall	biann(odd)	Smichowski
330	Plant Physiology	3	Fall	biann(odd)	Flesch
331	Vertebrate Anatomy	3	Fall	biann(even)	Honeywell
332	Physiology	4	Spring	annual	Becker
340	Genetics	3	Spring	annual	Flesch
345	Developmental Biology	3	Spring	biann(even)	Flesch
351	Animal Histology & Microtechniques	3	Spring	biann(odd)	Flesch
355	Microbiology	3	Spring	annual	Goff
360	Ichthyology	3	Spring	biann(odd)	Smichowski
362	Limnology	3	Fall	biann(odd)	Meyer
380	Immunology	3	Spring	annual	Honeywell
401	Bio Statistics & Exper. Design	3	Spring	irregular	Soderberg
404	Seminar	1	Fall/Spring	annual	Staff
BFC 404	Seminar	1	Spring	biann(odd)	Staff
444	Molecular Biology	3	Spring	biann(even)	Flesch
450	Internship	1-12	Summer	annual	Soderberg
460	Aquaculture Research	1-3	Fall	annual	Soderberg
461	Management of Small Impoundments	3	Summer	biann(even)	Soderberg
462	Management of Streams & Lg. Impd.	3	Summer	biann(even)	Soderberg
465	Seminar in Environ. Sci.	1		irregular	Meyer
482	Cell Physiology	3	Spring	biann(odd)	Flesch
497	Independent Study	1-3	Fall/Spr/Sum	annual	Staff

\* may not be taken by Biology majors for biology credit

\*\* may be taken by Allied Health students only and may NOT be taken by Biology majors for credit

@ may be taken by Fisheries majors only

% may be taken by any bioloy major with departmental permission

## BIOLOGY FACULTY RESEARCH INTERESTS

Anthony J. Becker, Jr. B.S., M.S., Ph.D. respiratory physiology of aquatic organisms, neural mechanisms of animal behavior evolutionary processes	Physiology
David C. Flesch. B.S., Ph.D. plant cell wall biosynthesis and formation cell membrane fusion mechanisms	Cell Biology
Ralph C. Goff. B.S., Ph.D. bacterial metabolism	Microbiology
Lawrence R. Honeywell. B.S., V.M.D. fish immunology vertebrate enzymology animal pathology	Immunology
Robert C. Maris, B.S., M.S., Ph.D. zooplankton ecology crustacean biology vertical distribution dispersal/recruitment	Marine Ecology
James W. Meade. B.S., M.S., Ph.D. (Adjunct) toxicology of salmonid fishes limiting factors in fishery production	Fish Culture
Kenneth A. Meyer. B.A., M.A., Ph.D. water pollution control water quality evaluation	Ecology
Vincent P. Smichowski. B.S., M.Ed., D.Ed. population dynamics of stream insects shark behavior	Zoology
Richard W. Soderberg, B.S., M.S., Ph.D. fisheries population dynamics small impoundment management fish histopathology	Fish Management
Lois Vore, B.A., M.S. food microbiology	Microbiology

